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(71) Applicant  
Noel Douglas Lempriere,  
8393 Hollis Place, South Burnaby, Vancouver, Canada

(72) Inventor  
Noel Douglas Lempriere

(74) Agent and/or Address for Service  
A. A. Thomson & Co., Northumberland House, 303-305  
High Holborn, London WC1V 7LE

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(54) Wash cloth

(57) A disposable, dry, wash cloth comprises a high wet strength non-woven material impregnated with a surfactant composition. The wash cloth may be used for washing the body or hair when having a shower. The non-woven material may be a wet laid material comprising cellulosic and rayon fibres, and the surfactant composition may comprise an anionic surfactant, foam booster, super fatting agent, and fungicide.

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## SPECIFICATION

## Nonwoven article

- 5 This invention relates to a disposable personal washing article.

Bar soaps, shampoos and shower gels are well known articles for personal cleaning use in showers. These are generally used in conjunction with a sponge or cloth for ease of use. This method of cleaning in a shower however has disadvantages as messy bars of soap and bulky bottles need to be carried, which is generally inconvenient and cumbersome, especially when showering outside the home. One article which is currently known is the leaf, which overcomes these problems but is relatively costly and limited in its performance. We have now devised an improved personal washing article.

- 20 According to the present invention there is provided a single use disposable impregnated dry cloth comprising a high wet strength nonwoven, impregnated with a mixture of surfactants and other agents and presented dry to the user for use as a hair and body shampoo and wash cloth for use when showering.

The nonwoven in the invention is preferably a high wet strength wet laid nonwoven comprising a mixture of cotton and rayon fibres with a basic weight in the range from 35gsm. to 85gsm. providing a good pleasant and substantive feel to the skin and retaining sufficient strength when wetted in use, but yet being not too substantive as to make the user reluctant to dispose of the article after single use. Other nonwovens can be envisaged comprising of different fibre composition and different basis weights which would be equally suitable for use in the current invention.

The substrate is impregnated with a surfactant composition comprising a mixture of anionic surfactants, foam boosters, super fatting agents, fungicides and other ingredients suspended in water at a total solids content in the range from 20% to 70% and preferably in the range from 40% to 70%, and with a viscosity in the range from 50 cps. to 1,000 cps. and preferably in the range from 100 cps. to 300 cps. The components of the composition must all be suitable for use in personal washing.

- 50 There are many possible anionic surfactants but we prefer to use a fatty alcohol polyglycol ether sulphosuccinate, which, unlike other well known anionic surfactants, can be manufactured at concentrations of up to 40% solids in water and still retain very low viscosities which are ideal for easy impregnation. In contrast to other types where 25% to 30% solids contents only are achievable without the composition become so viscous as to prevent simple impregnation being achieved easily. The foam boosters, super fatting agents and other ingredients are chosen from amongst those commonly used in hair and body shampoos, but chosen from those groups which do not show marked viscosity modifying behaviour. A colourant may advantageously be added to the composition,

to impart a pleasant appearance to the product and provide an indication of usage.

- The preferred manufacturing method is to pass the non woven substrate through a dip tank containing the surfactant composition end then between a pair of nipping rollers to provide even impregnation and metered impregnation dosage. The final ratio after drying and detergent composition to substrate is preferably between 1:1 and 10:1 by weight. The wet impregnated substrate is then passed through a drying stage before rewinding and other operations needed to convert the parent web into end product. It can thus be seen that surfactant compositions well suited to the present invention are those showing high solids in water content at low viscosity. After drying, 0.5% to 5% by weight of a perfume composition is added onto the product.

- Other manufacturing methods can be envisaged which are well known including spray coating, and methods which rely on solvent based surfactant compositions. It is also possible to formulate satisfactory compositions that are solid in nature at normal ambient temperatures and that are applied to the nonwoven substrate in a molten state and cooled to give the end product.

An embodiment of the invention will now be described by way of example only, without limiting the invention.

- 95 The product is a personal cleansing cloth for use during showering comprising of a sheet of nonwoven substrate 300mm long and 250mm wide.

The nonwoven of the example is a wet laid nonwoven consisting of a mixture of cellulose and rayon fibres with an acrylic binder, with characteristics of weight 60 grammes per square metre, thickness 275 micro and density 200kg per cubic metre, such as Storalene 741/60 produced by Stora Kopparburg Bergvik Ltd.

- 105 The sheet was impregnated with a surfactant composition comprising of a blend of di sodium lauryl alcohol polyglycol ether sulphosuccinate as principle detergent, cocount diethanolamide acting as a foam booster, cocountic acid alkanolamide sulphosuccinate acting as a super fatting agent and undecylenic acid propylamide trimethyl ammonium methosulphate acting as a fungicide. These are all available from REWO Chemicals Ltd. This composition is 48% solids when formulated, and 9.4g of this was impregnated onto the sheet of nonwoven substrate by passing the substrate through a dip tank containing the surfactant composition and out through a nipping roller arrangement to meter the impregnation level exactly, and then dried in a hot air assisted oven leaving 4.5g of solids on the cloth.

The resultant dry cloth was impregnated with 0.5% by weight of a perfume composition in an alcohol base to impart a pleasant odour to the product.

- 125 The article in this example is particularly advantageous for use in the shower as it produces a rich stable foam in both hot and cold water, and imparts a refreshing clean feeling to the hair and skin after use. The nonwoven substrate is sufficiently

bulky and strong as to prevent break up during use and because of its nature can be used to the produce the product relatively cheaply so that it may be used once and then discarded.

- 5 It is to be understood that various impregnated cloths have been described in the past such as for example those impregnated with fabric softening compounds. However, the materials used in these cloths render them quite unsuitable for use as per-
- 10 sonal washing articles in accordance with the concept of the present invention.

#### CLAIMS

- 15 1. A disposable washing cloth comprising a sheet of high wet-strength non-woven material impregnated with a surfactant composition for presentation dry to a user for use as a hair and/or body shampoo and wash cloth when wet.
- 20 2. A washing cloth as claimed in claim 1, wherein the non-woven material comprises a mixture of cotton and rayon fibres.
3. A washing cloth as claimed in either claim 1 or claim 2, wherein the non-woven material has a
- 25 basic-weight in the range from 35 gsm to 85 gsm.
4. A washing cloth as claimed in any one of the preceding claims, wherein the surfactant composition comprises a mixture of an anionic surfactant, a foam booster, a super fatting agent and a fungicide, suspended in water.
- 30 5. A washing cloth as claimed in claim 4, wherein the composition has a total solids content in the range from 20% to 70%.
6. A washing cloth as claimed in claim 5,
- 35 wherein the total solids content is in the range from 40% to 70%.
7. A washing cloth as claimed in any one of the preceding claims, wherein the viscosity of the composition used for impregnating the material is
- 40 in the range from 50 cps to 1,000 cps.
8. A washing cloth as claimed in claim 7, wherein the viscosity is in the range from 100 cps to 300 cps.
9. A washing cloth as claimed in any one of
- 45 claims 4 to 8, wherein the anionic surfactant is a fatty alcohol polyglycol ether sulphosuccinate.
10. A washing cloth substantially as described herein.
11. A method of manufacturing a washing
- 50 cloth, comprising the steps of passing a non-woven substrate first through a dip tank containing a surfactant composition, and then between a pair of nipping rollers.
12. A method as claimed in claim 11, comprising
- 55 the further step of passing the impregnated substrate through a drying stage to a rewinding step.
13. A method as claimed in claim 12, wherein the ratio, after drying, of detergent composition to
- 60 substrate is between 1:1 and 10:1 by weight.
14. A method of manufacturing a washing cloth substantially as described herein.